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RECORD OF ORAL HEARING
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DOMINIQUE LOUBINOUX

Appeal 2009-012428
Application 10/068,857
Technology Center 1700

Oral Hearing Held: April 15, 2010

Before BRADLEY R. GARRIS, CHUNG K. PAK and MARK NAGUMO,
Administrative Patent Judges.

ON BEHALF OF THE APPELLANT:

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1 The above-entitled matter came on for hearing on Thursday,
2 April 15, 2010, commencing at 10:25 a.m., at the U.S. Patent and Trademark
3 Office, 600 Dulany Street, 9th Floor, Alexandria, Virginia, before Lori B.
4 Allen, Notary Public.

5 JUDGE GARRIS: Good morning.

6 MR. KOSCHMIEDER: Hello.

7 JUDGE GARRIS: Sir, as you know, you have about 20
8 minutes. Would you please begin?

9 MR. KOSCHMIEDER: Okay.

10 Well, if it pleases the Board, I will start with a general
11 description of the invention, and move on to the rejection, and how the
12 invention and aspects of the claims distinguish the claimed invention from
13 the cited art.

14 First, what I'd like to do is draw your attention to the first page
15 of the specification. We have a description of certain aspects of the
16 invention, and that description includes some text, which distinguishes at
17 least one aspect of the invention from processes which use different
18 materials, in particular fabric-type materials.

19 And I am pointing in the original specification, page 1, it will
20 be paragraphs 2 and 3, beginning there at about line number 8. Reading the
21 last lines, it looks like lines 16 through 19, "The structures used for
22 producing the sheets usually not being the threads, as such, but complex
23 structures incorporating the threads, and requiring prior processing steps."

24 That is a description of prior art processes, which make
25 composite materials.

1 The reason I bring that to your attention, I think it describes a
2 very important aspect of the invention in that the process, one, or at least one
3 aspect of the process, is that you are not required to use a fabric to form the
4 composite.

5 So in the specification clearly, we've described an embodiment
6 of the invention, which has advantages over what I will call fabric-based
7 processes.

8 Now the question is: How was that embodied, or how was that
9 shown in the claims? Well, there are several requirements of the claims,
10 which reflect those features.

11 Looking at Claim 30, in particular lines 12 and 13 -- and I'm
12 reading from page 8 of the Claims Appendix of the Appeal Brief -- Claim 30
13 states, "Wherein the threads of the first layer, second layer, and third layer
14 are separate and unconnected."

15 So that is one important feature of the claims, which reflects the
16 description of the invention I just described in that the process is a
17 non-fabric-based process for making a composite sheet.

18 So finishing, "from threads in any other layer." That is one
19 aspect.

20 Now reading on page 9 of the Claims Appendix from the
21 Appeal Brief, line 6 and 7, "Wherein the composite sheet comprises solely
22 the first bundle of parallel threads, the lap of threads, and the second bundle
23 of parallel threads."

24 So that is the second aspect of the invention that's important in
25 distinguishing the claims from the cited art.

1 Now what the Examiner has done -- obviousness in view of a
2 number of references that include a reference to Middleman. And
3 Middleman is cited as the primary reference.

4 There are a number of differences between Middleman and the
5 claimed invention. And just to begin, I think one thing that's important to
6 point out is that the Middleman patent describes a process that is
7 distinguished from the non-fabric processes that we describe in our
8 specification, and which is reflected in our claims.

9 And in particular, Middleman has a long discussion, columns 1
10 and 2, beginning at about line 29 in column 1, and then going through
11 column 2, where he contrasts fabric-based processes from non-fabric-based
12 processes.

13 To make a long story short, Middleman is describing a process
14 that must include a fabric component; that is, whatever composite sheet is
15 made in the Middleman process is one that is made by using some fabric
16 material, which is impregnated with some matrix material.

17 So right away, we see a big difference between the primary
18 reference and the claimed invention.

19 JUDGE GARRIS: I'm not sure I do see that.

20 MR. KOSCHMIEDER: I'm sorry --

21 JUDGE GARRIS: I don't see where Middleman is describing I
22 guess what you are referring to as a woven fabric. That discussion in
23 Middleman with regards to woven fabric in column 22, as you point out, is a
24 discussion of the prior art. Middleman -- seems to instead direct you to
25 layers, which are not, in fact, interwoven one with the other.

1 MR. KOSCHMIEDER: Your Honor, you're correct. Pardon
2 me, I misspoke. The Middleman invention is, in fact, one in which they use
3 a non-woven material.

4 I had misspoke in saying that his description there is actually
5 one where he distinguishes from, as you say, prior art in which there are
6 woven materials. Reading, for example, column 1, lines 30 and 31, "There
7 are certain drawbacks to the use of reinforcing fibers in the form of woven
8 fabrics."

9 So the distinction, more correctly put, is that Middleman
10 describes a process that is different from the secondary references. I'll talk
11 about that aspect in just a moment.

12 There is still an important difference between Middleman and
13 the claimed invention. As it's set forth in the Appeal Brief, in fact, there is --

14 JUDGE GARRIS: Let me just -- is Middleman -- disclose the
15 three layers that are separate and unconnected, and therefore not woven?
16 Exactly what's the difference, the critical difference between Middleman and
17 the claim?

18 MR. KOSCHMIEDER: The critical difference between
19 Middleman and the claim is the use of -- and I'm going to call it
20 impregnation device -- that may be most clearly shown in Figure 1 of
21 Middleman, which was reproduced on page 5 of the Appeal Brief.

22 So what Middleman is doing is he takes a number of fibers or
23 threads, and then passes them through this impregnation device. And that's
24 identified as it's kind of a rectangular device in Figure 1 of Middleman.

25 The purpose of that impregnation device is to add the matrix
26 material to whatever fibers are passing through the process.

1 So in the claim process, where we have this requirement that
2 the first -- let me read it, so I speak accurately -- "that the composite sheet
3 comprises solely the first bundle of parallel threads, the lap of threads and
4 the second bundle of parallel threads, that would then be violated by the
5 impregnation device, identified by Reference Numeral 15 in Middleman's
6 Figure 1.

7 Because that would be adding some matrix material, perhaps in
8 the form of a liquid -- I don't know what -- but that's in violation of our
9 claim with respect to the composite structure that is formed.

10 JUDGE GARRIS: I think in Middleman, the element 15 you
11 have alluded to is -- for example resin, that the thermoplastic resin material
12 that is used to interconnect the two other layers of Middleman, of
13 course -- first bundle of parallel -- whereas -- employ what you describe as a
14 second combination of threads that includes thermoplastic organic material
15 separate from the other layers, Middleman employs thermoplastic -- instead
16 of a separate layer of --

17 And for that distinction, the Examiner relies upon a secondary
18 reference, the Examiner is suggesting that instead of using a thermoplastic
19 melt, as Middleman does, it would have been obvious to use a
20 thermoplastic -- layer in order to form the composite of Middleman.

21 And he relies upon the secondary references in support for that
22 obvious --

23 And so please describe to us why you believe the Examiner's
24 reliance on the secondary reference is really -- his conclusion of --

25 MR. KOSCHMIEDER: Well, just to address your comments,
26 and to leave, sort of break from my comments from Middleman, now in this

1 aspect is where the Middleman's distinguishing of woven materials from
2 non-woven materials is important.

3 If we look at the prior art that was cited, the secondary
4 references in particular, we see devices that -- not devices, rather, but fibrous
5 materials that are fabric type.

6 So just beginning, because I have it here in front of me, first,
7 with the UK patent, which I believe the Examiner identifies as Senior, right
8 in the abstract, it's very clear that he's talking about a fabric.

9 In contrast, Middleman talks about having to use some
10 non-woven material. And further in contrast to the claimed invention, we
11 require that our first, second, and third layers are separate and unconnected
12 threads.

13 So there is this jump that is made by the Examiner, saying that
14 one of skill in the art would turn to this woven material as inspiration to
15 modify Middleman, who expressly distinguishes his process from such
16 fabric-based processes.

17 So that is one basis for pointing out that the secondary
18 references would not be, in fact, combined with the primary reference,
19 Middleman.

20 JUDGE GARRIS: Could you please point to the section of
21 your Principal Brief, which makes that very argument you have just
22 presented?

23 MR. KOSCHMIEDER: Well, the Principal Brief primarily
24 points out that the modification of Middleman in the manner asserted by the
25 Examiner as obvious, wouldn't make sense, because you would essentially

1 render Middleman inoperable for the reason that you would taking away the
2 impregnation device.

3 In the Examiner's Answer to the Principal Brief, the Examiner
4 brought forth some points with respect to the combination of the secondary
5 references and the primary reference.

6 In the Reply Brief that was filed in this case, there is a
7 discussion with respect to the secondary references and how the disclosure
8 and description of fabric-based or woven type materials as a composite
9 structure are disclosed, which are different from the Middleman non-woven
10 materials.

11 JUDGE GARRIS: So it's in the Reply Brief that you make the
12 argument you just presented to us at the oral hearing.

13 MR. KOSCHMIEDER: That is one place where this argument
14 has come up. This argument has also been made earlier to the Examiner
15 with respect to distinguishing Middleman from the cited art.

16 JUDGE GARRIS: What I think I'm assuming, when you say it
17 was also brought up to the Examiner, this argument was made to the
18 Examiner previously, are you referring to the prosecution that was
19 conducted before the Examiner?

20 MR. KOSCHMIEDER: That is correct.

21 JUDGE GARRIS: What I'm interested in is whether, in fact,
22 this argument we're discussing was actually made in a reasonably
23 specific -- in the Principal Brief. And if not, why not?

24 MR. KOSCHMIEDER: The Principal Brief focuses on the
25 distinction of Middleman with the claimed invention with respect to the
26 impregnation device, that is correct.

1 That at the time was the argument that appeared to be the most
2 persuasive for overcoming the rejection.

3 I can quickly look through the Principal Brief, to see if there is
4 an allusion to aspect of the difference between the claimed invention and
5 the -- or the difference between Middleman and the cited art.

6 Well, my point in reply would be that Middleman is
7 distinguished with respect to the alleged obvious modification on the basis
8 that it would essentially change the principle of operation of the Middleman
9 process.

10 That is an argument that holds both for the removal of the
11 impregnation device and with respect to using a fabric-type material, such as
12 that described in the secondary references in the Middleman process, which
13 is one described as a non-fabric-based process.

14 JUDGE GARRIS: Well -- understand that in the Principal
15 Brief, you did argue that the proposed modification of Middleman would
16 change its principle of operation.

17 But I am concerned that in the Principal Brief, there was no
18 reasonably specific argument addressing what you now argue is a deficiency
19 of the rejection, namely that the secondary references are directed to woven
20 fabrics, which Middleman does not use in Middleman's invention.

21 And so again, I want to make clear that that argument seems to
22 have been made only in the Reply Brief. And the question that we have to
23 address now is why was it not made in the Principal Brief?

24 This matter is of concern to us, because the Examiner makes in
25 the Answer express statements that, in fact, the Appellant -- I'm now going
26 to quote from page 12 of the Answer, where the Examiner says, "It should

1 be noted that the Appellant failed to address any of the teachings of
2 O'Connor and -- et cetera, the use of the secondary reference.

3 And therefore the Examiner considers that the Appellant is in
4 agreement with the Examiner's interpretation --

5 And so it seems as though the Examiner is
6 making -- statement -- the point you now make here at oral hearing and what
7 you'd subsequently made in your Reply Brief, subsequent to the
8 Examiner's -- where you critiqued the secondary references as being directed
9 to woven fabric, is in fact an argument -- made in the --

10 And again, then, I'll get back to the point. If it was not made in
11 the Principal Brief, why was it not so made?

12 The regulation seems to require that you put all of your
13 arguments directly in the Principal Brief, so that everyone, including the
14 Examiner, has it there in the first instance, so that the arguments can be --

15 MR. KOSCHMIEDER: Yes. Thank you for pointing that out.
16 And it's somewhat odd that the Examiner would argue that there would be
17 some implication that we were in agreement with that.

18 The Examiner and I discussed the case on numerous occasions.
19 Based upon those discussions, based upon the prosecution history of the case,
20 the critical issue was the modification of Middleman. For that reason, the
21 Principal Brief focused on modification of the Middleman process according
22 to the impregnation device, rather than the difference between the fabric and
23 non-fabric-type materials.

24 Now in receiving the Examiner's Answer, the Examiner decided
25 to put emphasis on the secondary references. So it was obviously in the
26 Applicants interest to point out that those arguments were not agreed to by

1 Applicants, and that there is no agreement that the teachings of the
2 secondary references are somehow surrender with respect to their meaning
3 in the claimed invention.

4 JUDGE GARRIS: Leaving that aside, then, for the moment,
5 your argument in the Principal Brief that everyone understands is that the
6 Examiner's proposed modification -- render Middleman inoperative, I
7 believe is the argument that -- something to that effect.

8 MR. KOSCHMIEDER: That is correct, or change its principle
9 of operation.

10 JUDGE GARRIS: Right. Would you care to explain to us the
11 basis for your position on that?

12 MR. KOSCHMIEDER: Well, Middleman describes one
13 method by which a matrix material is added to the fabric or the thread. That
14 is the impregnation device.

15 Middleman takes the impregnation device, or uses the
16 impregnation device, apparently to add a liquid matrix material to threads
17 moving in a continuous fashion.

18 So the Examiner believes that one of skill in the art would
19 exchange the impregnation device for the thermoplastic-containing thread of
20 the presently claimed invention.

21 But the difficulty with that is you're moving from the liquid to
22 the solid stage, where Middleman uses a liquid matrix material and an
23 impregnation device, the claimed invention, and the secondary references
24 have a mixture of a thermoplastic resin in a solid state, and a reinforcing
25 fiber in a solid state.

1 So the question is, how can going from a liquid state to a solid
2 state be so obvious? And what would that do to the principle of operation of
3 the Middleman process?

4 Well, what it does is it completely changes it. Instead of adding
5 a liquid material to a collection of fibers, you're now taking only fibers in
6 their solid form. And that is a very different way of carrying out a process
7 by which you form a matrix in a composite material.

8 JUDGE GARRIS: Let me just clarify this, if I may. Now
9 alternately, isn't your -- combination heated up and pressure applied so as to
10 thermally fix the layers together by melting the thermoplastic material, and
11 in that way, adhering the composite layers together?

12 MR. KOSCHMIEDER: That is correct. It is a process by
13 which solid threads are combined. They're heated such that a matrix can,
14 let's say -- I'm going to use the word "encase," just to give you a description
15 of what is happening -- to encase the fibers.

16 And then those fibers, the encased fibers, are then cooled, and
17 you have a solid composite.

18 JUDGE GARRIS: Now in contrast, Middleman, instead of
19 applying solid fibers of thermoplastic material and then heating them to
20 unite the upper and lower layers, instead applies a melt to the thermoplastic
21 to unite the upper and lower layers.

22 MR. KOSCHMIEDER: I wouldn't go so far as -- perhaps he
23 also uses a curable liquid material that is not melted, but in principle I --

24 JUDGE GARRIS: No, it is a melt. He does --

1 MR. KOSCHMIEDER: Then, in that respect, if he's disclosing
2 a melt material added to fibers, then that is correct. One could envision that
3 perhaps he uses a curable liquid material that doesn't require melting.

4 In any case --

5 JUDGE GARRIS: The point is that ultimately the product that
6 Middleman desires is an upper and lower layer of threads that are
7 interconnected by way of thermoplastic resin, just as you do.

8 And so why are you correct in arguing that Middleman's
9 principle of operation is -- by using instead of a thermoplastic melt, a
10 thermoplastic layer of fibers between the upper and lower layers in order to
11 subsequently melt that thermoplastic layer --

12 MR. KOSCHMIEDER: Well, as I mentioned, Middleman adds
13 a liquid material to moving threads. So, I guess I would say he remotely
14 adds it, meaning that the material is something added separately to the thread
15 structure, after the thread structure is formed.

16 In comparison, our matrix material is present in the thread
17 structure. So to modify Middleman, to get to the claimed invention, you
18 have to take a big step. You go from what I'm going to call "remote addition
19 of a liquid material," to the addition of a solid material that is a part of the
20 thread structure.

21 JUDGE GARRIS: Isn't that exactly what the Examiner says are
22 secondary references of teaching here? And in fact, according to the
23 Examiner, the secondary references teach that there are advantages to using
24 thermoplastic solid threads, rather than a thermoplastic melt?

1 MR. KOSCHMIEDER: Perhaps there are advantages described
2 for fabric-type materials. There are not advantages described for
3 non-fabric-type materials.

4 The secondary reference, where they disclose the use of some
5 reinforcing solid fiber in combination with a thermoplastic fiber, are directed
6 to different types of fabric substrates; or in the case of the NASA tech brief,
7 they're just directed to a particular what might itself just be a cured fiber, or
8 a composite fiber, for lack of a better description.

9 JUDGE GARRIS: Well, counselor, we're really out of time
10 now. And so let me ask my -- Judge Pak, do you have any questions? Judge
11 Nagumo?

12 Sir, we're out of time, and we have no further questions of you
13 today.

14 Let me ask the court reporter, do you have --
15 No questions then.

16 MR. KOSCHMIEDER: Thank you.

17 JUDGE GARRIS: Thank you very much.

18 Whereupon, at 10:51 a.m., the proceedings were concluded.
19
20